

**Amendments to the Claims:**

The following listing of claims replaces all prior versions, and listings, of claims in the application:

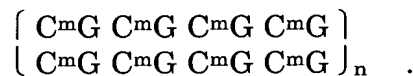
**Listing of Claims:**

1-31. (Canceled)

32. (Currently amended) A method of altering a demethylation activity of DNA demethylase in a cell comprising amino acids 150-411 of SEQ ID NO:2, the method comprising inhibiting DNA demethylase with an antagonist ~~or inhibitor~~ selected from the group consisting of a double stranded C<sup>m</sup>G oligonucleotide, an anti-DNA demethylase antibody, ~~an antisense oligonucleotide of DNA demethylase, and~~ imidazole ~~and derivatives of imidazole~~.

33. (Previously presented) The method according to claim 32, wherein said antagonist is a double stranded C<sup>m</sup>G oligonucleotide that inhibits DNA demethylase at a K<sub>i</sub> of 50nM.

34. (Previously presented) The method according to claim 33, wherein said oligonucleotide is :



35-40. (Canceled)

41. (Previously presented) The method according to claim 32, wherein said antagonist is an anti-DNA demethylase antibody.

42. (Previously presented) The method according to claim 32, wherein said antagonist is an antisense oligonucleotide of DNA demethylase.

43. (Previously presented) The method according to claim 32, wherein said antagonist is imidazole.

44. (Canceled)